

SCALABLE WAVELENGTH SHIFTED LASER SOURCE AND METHOD

ABSTRACT OF THE DISCLOSURE

A laser array architecture scalable to very high powers by fiber amplifiers, but in which the output wavelength is selectable, and not restricted by the wavelengths usually inherent in the choice of fiber materials. A pump beam at a first frequency is amplified in the fiber amplifier array and is mixed with a secondary beam at a second frequency to yield a frequency difference signal from each of an array of optical parametric amplifiers. A phase detection and correction system maintains the array of outputs from the amplifiers in phase coherency, resulting in a high power output at the desired wavelength. A degenerate form of the architecture is disclosed in an alternate embodiment, and a third embodiment employs dual wavelength fiber amplifiers to obtain an output at a desired difference frequency.